REMARKS/ARGUMENTS

Claims 1-13 and 20-23 remain in the application. Claims 1, 3, 4, 7 and 20 are currently amended.

Claim Rejections Under 35 USC § 112

Claims 1-6 and 20-23 were rejected under 35 USC § 112, first paragraph. The Examiner believes that claims 1-6 and 20-23 fail to satisfy the enablement requirement as containing subject matter that was not described in the Specification in a manner as to enable one of ordinary skill in the art to practice the invention.

Regarding claims 1-6, the Examiner believes that the Specification fails to support the limitation of "a resistance element integral with the snap-action thermal switch and coupled to an output the thermal switch on the pair of contacts," as recited in claim 1.

Claim 1 is amended to clarify that the resistance element is electrically coupled to an output of the thermal switch that is generated on the pair of contacts. Rather than the resistance element being coupled to the pair of contacts, it will be understood that the resistance element is coupled to the output of the thermal switch that is generated on the pair of contacts.

As disclosed by the Specification, the thermal switch 10 includes electrical contacts 14, 16 that are connected to a pair of electrically isolated terminal posts 20, 22 mounted in header 24. Specification at page 6, lines 6-23, as originally filed. The resistor 12 is mounted to the interior of the thermal switch 10 and is electrically connected to the two terminal posts 20, 22. Specification at page 7, lines 19-20, as originally filed. The resistor 12 is physically coupled to the header 24, as by adhesive bonding. Specification at page 7, lines 19-21, as originally filed. Furthermore, the lead wires 46, 48 of the resistor 12 are electrically coupled to each of the terminal posts 20, 22, as by spot welding to an outer surface of the corresponding terminal post 20, 22. Specification at page 7, lines 22-24, as originally filed. The output of the resistor 12 is thus available on the terminal posts 20, 22 while the electrical contacts 14, 16 provide an open circuit. Specification at page 7, lines 24-26, as originally filed.

The resistance element being electrically coupled to an output the thermal switch that is generated on the pair of contacts, as recited in currently amended claim 1, is thus fully

enabled within the meaning of 35 USC § 112, first paragraph, by the Specification as originally filed.

Regarding claims 3-6, the Examiner believes that the Specification fails to support the limitation of "a pair of terminals being mutually electrically isolated," as recited in claim 3.

Claim 3 is amended herein to clarify that the terminals 20, 22 are electrically isolated only relative to the contacts 14, 16 residing on there interior ends. As discussed herein above, the Specification as originally filed fully enables the two terminal posts 20, 22 being mounted in a header 24 such that they are electrically isolated from the header 24 and from one anther. By example, the terminal posts 20, 22 are mounted in the header 24 using an electrical isolator 26 (shown in Figure 1) formed of an electrically isolating glass or epoxy material. Specification at page 6, lines 21-25, as originally filed.

Claim 4 is amended to cooperate with amended claim 3.

Regarding claim 20, the Examiner believes that the Specification fails to support the limitation of the "first, second and third electrical terminals ... being ... mutually electrically isolated," as recited in claim 20.

Claim 20 is amended herein to clarify that the terminals 20, 22, 142 are electrically isolated only relative to the header 24. The Specification as originally filed fully enables the two terminal posts 20, 22 being electrically isolated from the header 24. See, page 6, lines 21-25. The Specification as originally filed also fully enables the third terminal 142 being electrically isolated from the header 24 using an electrical isolator 26. See, page 13, lines 19-22.

The Applicant believes that the claims as amended herein are fully enabled by the Specification as originally filed. The Applicants therefore respectfully request that the Examiner reconsider the claims and withdraw the rejection under 35 USC § 112.

Claim Rejections Under 35 USC § 102

Claims 1-6 were rejected in the parent application under 35 USC § 102(a) or (e) as being anticipated by US Patent 5,973,587 to Hofsass.

The present as recited by currently amended Claim 1 is believed to be allowable over Hofsass which teaches a known temperature-dependent switch 1, 10 having a temperature-dependent switching mechanism 12 arranged therein. Column 6, lines 9-11.

The switching mechanism 12 comprises a bimetallic disc 31 for bringing a contact bridge 29 into contact with two stationary contacts 26, 27, thereby closing the switch 10. Column 6, lines 34-50.

A pair of external electrical terminals 38, 39 are shorted together when the switch 10 is closed. Column 6, lines 51-60.

A resistor 46 is electrically coupled between the terminals 38, 39 such that it is in parallel with the two stationary contacts 26, 27, whereby it is bypassed by the contact bridge 29 when the switch 10 is closed, but is connected when the switch 10 is open. Column 7, lines 21-38. The resistor 46 is positioned within the switch 10 so as to provide a "self-hold function" when the switching temperature of the switch 10 is exceeded such that the contact bridge 29 is removed, and the switch 10 is opened. Current in the resistor 46 causes it to heat, and the heat generated by the resistor 46 "passes via electrodes 25, 26 and tab 42 into annular space 41, where it ensures that switching mechanism 12 does not cool off again below the changeover temperature. In other words, the residual current flowing through resistor 46 causes switch 10 to enter a self-holding state, i.e. not to close again automatically. Only when the operating current is switched off does switch 10 cool off so that it can return to the state shown in FIG. 1." Column 7, lines 21-53.

In contrast, the resistance element 12 of the present invention, as recited in amended claim 1, is physically spaced away from the thermal actuator 18 and <u>thermally isolated therefrom</u>. Accordingly, the present invention requires the resistance element 12 to be thermally isolated from the thermal actuator 18 to such a degree that it <u>cannot</u> operate to provide a "self-hold function," as required by the Hofsass device.

Therefore, because the Hofsass reference teaches the resistor 46 being positioned to heat the switching mechanism 12 to remain in a closed or "self-hold" state, i.e. heat the bimetallic disc 31 to hold the contact bridge 12 in contact with the two stationary contacts 26, 27, Hofsass actually <u>teaches away</u> from the present invention wherein the resistance element 12 is <u>thermally isolated</u> from the thermal actuator 18.

Furthermore, the resistance element 12 being thermally isolated from the thermal actuator 18 is fully supported by the Specification wherein the resistor 12 is bonded to an inner surface of the header 24, which spaces it well away from the actuator 18. Specification at page 7, lines 20-21 and Figures 2, 3. Alternatively, the resistor 12 is bonded to the exterior surface 54 of

the header 24. Specification at page 8, lines 25-29 and Figures 4 and 5. Also in contrast to the Hofsass device, the resistance element 12 appears only as a minimum resistance R_T which inherently cannot generate sufficient heat required to provide the "self-hold function" of the Hofsass device.

Additionally, the thermal switch 10 is structured to sense only an "ambient temperature" above a predetermined set point. Specification at page 8, lines 4-7. Furthermore, as set forth by Wehl, et al. in US Patent 5, 936, 510, conventional thermal switches measure the ambient temperature and operate as a function of increasing and decreasing ambient temperature. See, Wehl at column 4, lines 4-7.

For at least the above reasons, claim 1 is not anticipated by Hofsass and is now believed to be allowable. Claims 2-6 are allowable as depending from allowable claim 1.

Dependent claim 4 is additionally allowable independently of base claim 1 as reciting the pair of shorted terminals being opened when the device senses an ambient temperature lower than the predetermined set point. Such opening of the shorted terminals is exactly opposite the teaching of Hofsass which requires the stationary contacts 26, 27 to remain shorted by the contact bridge 29 when the ambient temperature cools below the set-point or "changeover" temperature of the switching mechanism 12. Column 7, lines 21-53. In other words, the only purpose of the resistor 46 as taught by Hofsass is to keep the switching mechanism 12 hot so that the shorted terminals do not open when the ambient temperature cools down.

For at least the above reasons, claim 4 is allowable independently of allowable base claim 1.

Claims 7-13 were rejected under 35 USC § 102(a) or (e) as being anticipated by US Patent 5, 936, 510 to Wehl, et al.

The present as recited by currently amended Claim 7 is believed to be allowable over Wehl which teaches a thermostat 10 that is almost identical to the switch 10 taught by Hofsass. Respective terminals 22, 16 of a bimetallic element 20 and cooperating electrode or "blade" 14 are interconnected by a resistor 48. Column 2, line 60-column 3, line 49.

As is generally well known and clearly explained by Wehl, once the ambient temperature decreased below the threshold temperature, the bimetal plate 14 bends back toward

terminal or "contact blade" 16, thereby closing the circuit once again. Column 4, lines 4-7. However, that is exactly the operation that Wehl is attempting to overcome. Column 4, lines 8-27.

Rather, the current being applied to the two terminals 16, 22, is applied to the resistor 48 which is of sufficient resistance that a sufficient amount of heat is generated by the resistor 48 to maintain the temperature within the thermostat case 12 at or above the threshold temperature, whereby the thermostat switch 10 is maintained in the second open position until the load current being applied to the resistor 48 is removed, either by turning off the ventilator via a switch or removing the power line cord. Thereafter, the thermostat 10 will eventually cool down and reset itself when the ambient temperature falls below the threshold level. Column 4, lines 8-27.

Thus, like Hofsass, Wehl requires the resistor 48 to be sufficiently proximate to the actuator (bimetallic element 20) as to heat the bimetal plate 14 so that it remains in the bent back toward terminal or "contact blade" 16, thereby maintaining the circuit in a closed state to provide the same "self-hold function" as the Hofsass device.

As discussed above, the present invention is completely different from both the Hofsass and Wehl devices. Rather, in contrast to both Hofsass and Wehl, the electrical resistor of the present invention is spaced away from the actuator and thermally isolated therefrom, and the actuator is responsive to the sensed ambient temperature for spacing the first movable contact away from the second contact, as recited in amended claim 7.

Therefore, because Wehl teaches exactly that the resistor 48 must be sufficiently proximate to the actuator, i.e. bimetallic element 20, to keep it heated above the set-point or "threshold" temperature, Wehl actually teaches away from the present invention wherein the resistance element 12 is thermally isolated from the thermal actuator 18.

For at least the above reasons, claim 7 is not anticipated by Wehl and is now believed to be allowable. Claims 8-13 are allowable as depending from allowable claim 7.

Claims 7-13 were rejected in the alternative under 35 USC § 102(b) as being anticipated by US Patent 5,337,036 to Kuczynski which teaches two embodiments are disclosed using a resistance type heating element to supply or augment heat to maintain the bimetallic element open where necessary to prevent the bimetallic element from resetting too quickly. Column 13, lines 59-63 and Figures 23, 24. Thus, Kuczynski teaches exactly the same "self-hold function" taught by both Hofsass and Wehl that is discussed herein above. In the device of Figure

23, a heating element 210a is wired in series with the thermostat circuit and physically wrapped around the thermostat 210 such that, when excessive current is present, the heating element 210a generates sufficient heat to cause the housing of the thermostat 210 to increase in temperature to reach that set-point or "predetermined" temperature at which the bimetallic plate or element is actuated, causing it to snap and open the current carrying circuit and thus safeguard the electrical appliance, not shown, being protected by the thermostat 210. The casing temperature for the thermostat 210 then begins to fall to the point at which the bimetallic plate or element will reset, causing the circuit to close again and the thermostat 210 will continue to recycle until the over-current condition is removed. Column 13, line 64-column 14, line 18 and Figure 23.

Thus, the heating element 210a generates sufficient additional heat in the thermostat 210 as to prevent the bimetallic element for the thermostat 210 from resetting until the over-current condition is removed.

In the device of Figure 24, a heating element 310a is wired in parallel with the thermostat circuit and is again physically wrapped around thermostat 310 in which the bimetallic element, not shown, is in the normally closed position. When the bimetallic plate or element snaps to the open position, the current flowing in the thermostat 310 flows through the heating element 310a which responsively generates sufficient additional heat in the thermostat 310 to raise the temperature of the thermostat 310 to a predetermined level which prevents the bimetallic plate or element from resetting. Column 14, lines 29-55 and Figure 24.

Thus, in relevant part, Kuczynski teaches <u>only</u> what Hofsass and Wehl taught. Namely, the heating elements 210a, 310a are positioned in thermal proximity to the respective thermostat actuators so as to heat the actuator sufficiently to operate in the absence of an elevated ambient temperature. Therefore, because Kuczynski fails to anticipate the electrical resistor of the present invention being spaced away from the actuator and <u>thermally isolated therefrom</u>, as recited in amended claim 7, Kuczynski fails to anticipate the invention as presently recited in claim 7. In fact, like Hofsass and Wehl, by teaching the heating elements 210a, 310a being positioned to generate heat in the respective thermostat actuators, Kuczynski actually also <u>teaches away</u> from the present invention wherein the resistance element 12 is <u>thermally isolated</u> from the thermal actuator 18.

For at least the above reasons, claim 7 is not anticipated by Kuczynski and is now believed to be allowable. Claims 8-13 are allowable as depending from allowable claim 7.

Claims 20-23 were rejected under 35 USC § 102(b) as being anticipated by US Patent 4,306,210 to Saur.

The present as recited by currently amended Claim 20 is believed to be allowable over Saur, which teaches a "two-stage temperature-dependent switch." Column 2, lines 49-53.

A principal object of the Saur patent is to provide a temperature-responsive electrical switch containing at least two separate <u>temperature-responsive</u> circuits which may be independently switched on and off in dependence of the occurrence of different levels of temperature. Column 1, lines 25-30.

The first <u>temperature-responsive</u> circuit is a "snap-switch" operated by thermally-responsive wax mixture that changes volume as a function of the sensed temperature of an external fluid. The wax volume change operates an "activating lever" 20 to activate a "contact post" 29 to alternate between open and closed positions. Column 2, line 49-column 3, line 35.

The second temperature-responsive circuit is "a <u>temperature-dependent</u> semiconductor element 31." Column 3, lines 36-39. The <u>temperature-dependent</u> semiconductor element 31 is either a "cold conductor" having a resistance that increases with increasing temperature, or a "hot conductor" having a resistance that decreases with increasing temperature. Column 3, lines 44-56. In either embodiment, the semiconductor element 31 is <u>temperature-dependent</u> and constitutes a second circuit that conducts current until a change in temperature causes an increase in resistance the reduces current flow and causes the switch to shut-off. Column 3, lines 44-56.

Thus, Saur teaches a single housing having a first mechanical electrical switch and a second semiconductor switch, both being <u>temperature-dependent</u> switches.

In contrast to Saur, the invention recited in amended claim 20 is a temperature-dependent first switch driven by a bimetallic actuator that is thermally-responsive to sensed ambient temperature, and a second circuit that is <u>not</u> a switch at all. The second circuit is an electrically resistive element that is substantially thermally-independent. In contrast to Saur, the electrically resistive element of the second circuit of the present invention is thus <u>temperature-independent</u>.

The invention recited in claim 7 is distinguished from Saur by reciting a resistive conductor that is independent of the sensed ambient temperature that drives the thermally-responsive bimetallic actuator of the snap-action thermal switch.

Because Saur teaches having the semiconductor element 31 coupled as a second temperature-dependent switch, the semiconductor element 31 inherently cannot anticipate the thermally-independent electrically resistive element of the present invention as recited in amended claim 20.

For at least the above reasons, claim 20 is believed to be allowable over Saur.

Claims 21-23 are allowable at least as depending from allowable claim 20.

The claims now being in form for allowance, reconsideration and allowance is respectfully requested.

If the Examiner has questions or wishes to discuss any aspect of the case, the Examiner is encouraged to contact the undersigned at the telephone number given below.

Respectfully submitted,

Attorney: Charles J. Rupnick
Registration No.: 43,068
Date: July 26, 2004
Post Office Address: PO Box 46752
Seattle, WA 98146
Telephone: (206) 439-7956
Facsimile: (206) 439-3223